

5/13

DART AEROSPACE LTD	Work Order:	22537
Description: Ø2.750 Support	Part Number:	D2893-1
Dwg: D2893 Rev. A1	Qty:	20 Page 1 of 1

Step	Location	Procedure	By	Date	Qty
1	DC	Issue Traveller. Blank size makes (2) D2893-1 Dwg not required	KJ	05.02.23	20
2	PG	Issue P/O: 100X631 Description: D6104-005 Material: 17-4 PH SS (AMS 5643 OR AISI 630) as per Dwg D6104 Material release note required.	U	05.02.24	20
3	RG	Receive and Inspect for raw material dimensions. Ensure material release note is attached.	CD	05/03/07	+0
4	MS	Turn blank for Haas as per Folio FA081	ML	05/04/09	+0
5	QC1	Inspect all dimensions as per Dwg D2893	ML	05/04/09	+0
6	MV	Machine as per Folio FA081	EC / JL	05/04/11	+0
7	MV	Tumble & Deburr	EC / JL	05/04/11	+0
8	QC1	Inspect all dimensions to inspection sheet as per Dwg D2893	JL	05/04/11	+0
9	QC8	Inspect dimensions for second check	SP	05/04/12	+0
10	FP	Powder Coat White (4.3.5.2) per QSI 005 4.3	ML	05.04.12	20
11	QC3	Inspect Powder Coat	DP	05/4/13	20
12	ST	Identify and stock	SP	05/4/13	20
13	AC	Cost / part 121.65	SAC	05.04.19	+0
14	DC	Close W/O 121.65 Inspect Level 21	KJ	05.04.20	20

Rev	Date	Change	Revised By	Approved
A	01.01.08	Preliminary Issue	EC	
B	01.07.19	Heat treat removed	NG	
C	02.11.26	Reformat; Added P/O	KJ / RF	RF

RELEASED
02.11.29 RF

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector

		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date			
05.04.11	4	Dim. 0.050 ± 0.01 is reading -0.031 (-0.009 under) -0.036 (-0.04 under) 2 parts affected	CP	Parts OK per DS recommendation	JB 05.04.20	JB 05.04.12 CP 05.04.20	CP 05.04.12 per QSI 42	JB 05.04.20

Part No: D2893-1

PAR #: _____

Fault Category: _____

NCR: Yes

No

DQA: 

Date: 05/04/20

NOTE: Date & initial all entries

QA: N/C Closed: _____

Date: _____

DART AEROSPACE LTD	Work Order:	22537
Description: Ø2.750 Support	Part Number:	D2893-1
Inspection Dwg: D2893 Rev. A1		Page 1 of 1

Inspect dimensions highlighted on inspection sheet drawing D2893 Rev A1/DSK078 Rev A and record below:

				Recorded Actual Dimensions						
Dim	Min	Max	Go/No Go Gauge	1	2	3	4	By	Date	
Lathe Section										
A	2.707	2.712		2.710	2.712	2.712	2.712	✓	05/04/04	
B	4.946	4.966		4.958	4.955	4.957	4.957	✓		
C	3.064	3.084		3.069	3.075	3.075	3.074	✓		
D	0.718	0.738		0.725	0.726	0.728	0.726	✓		
E	0.090	0.110		0.099	0.100	0.100	0.101	✓		
F	2.934	2.954		2.937	2.947	2.948	2.947	✓		
G	2.166	2.186		2.174	2.178	2.176	2.174	✓		
H	3.890	3.910		3.894	3.899	3.898	3.899	✓		
I	0.914	0.934		0.926	0.926	0.928	0.926	✓		
J	0.022	0.042		0.032	0.032	0.033	0.032	✓		
K	0.109	0.129		0.116	0.115	0.112	0.115	✓		
L										
HAAS Section										
AA	2.985	3.005		3.000	2.998	2.999	2.996			
AB	0.440	0.460		.440	.440	.440	.440			
AC	0.125	0.160		.144	.150	.145	.143			
AD	0.040	0.060		.050	.040	.040	.040			
AE	0.188	0.193	DT8706	.190	.190	.191	.190			
AF	0.125	0.160		.140	.140	.142	.143			
AG	0.140	0.160		.155	.156	.149	.150			
AH	1.360	1.400		1.385	1.387	1.386	1.386			
AI	0.040	0.060		.045	.049					
AJ	1.190	1.230		1.224	1.228	1.228	1.227			
AK	0.010	0.020								
AL	0.053	0.073		.060	.060	.060	.060			
AM	0.240	0.260		.240	.240	.240	.240			
AN	2.518	2.538		2.528	2.528	2.528	.240			
AO	84.39	90.39	DT8699							
AP	0.257	0.262	DT8683	.260	.259	.260	.259			
AQ	0.053	0.073		.060	.060	.06	.060			
AR										
AS										
Accept/Reject										

Measured by:	S.G/RF
Date:	31/03/05

Audited by:	EN
Date:	05/04/12

Rev	Date	Change	Revised by	Approved
A	02.12.13	New Issue	KJ/RF RF	RF

RELEASED
03.07.01

DART AEROSPACE LTD	Work Order:	22531
Description: Ø2.750 Support	Part Number:	D2893-1
Inspection Dwg: D2893 Rev. A1		Page 1 of 1

Inspect dimensions highlighted on inspection sheet drawing D2893 Rev A1/DSK078 Rev A and record below:

				Recorded Actual Dimensions						
Dim	Min	Max	Go/No Go Gauge	1	2	3	4	By	Date	
Lathe Section										
A	2.707	2.712		2.709	2.708	2.709	2.712			
B	4.946	4.966		4.957	4.957	4.956	4.955			
C	3.064	3.084		3.075	3.075	3.074	3.074			
D	0.718	0.738		0.726	0.726	0.728	0.726			
E	0.090	0.110		0.100	0.101	0.101	0.101			
F	2.934	2.954		2.946	2.947	2.945	2.946			
G	2.166	2.186		2.175	2.174	2.175	2.174			
H	3.890	3.910		3.899	3.899	3.897	3.898			
I	0.914	0.934		0.930	0.929	0.926	0.923			
J	0.022	0.042		0.032	0.032	0.032	0.032			
K	0.109	0.129		0.118	0.118	0.118	0.114			
L										
HAAS Section										
AA	2.985	3.005		3.000	2.997	2.995	2.993			
AB	0.440	0.460		.440	.440	.440	.440			
AC	0.125	0.160		.144	.143	.145	.145			
AD	0.040	0.060		.050	.040	.040	.040			
AE	0.188	0.193	DT8706	.190	.190	.190	.190			
AF	0.125	0.160		.140	.141	.140	.143			
AG	0.140	0.160		.155	.153	.155	.149			
AH	1.360	1.400		1.385	1.384	1.385	1.388			
AI	0.040	0.060		.045	.042	.045	.043			
AJ	1.190	1.230		1.224	1.228	1.230	1.230			
AK	0.010	0.020								
AL	0.053	0.073		.06	.06	.060	.060			
AM	0.240	0.260		.240	.240	.240	.240			
AN	2.518	2.538		2.528	2.528	2.528	2.528			
AO	84.39	90.39	DT8699							
AP	0.257	0.262	DT8683	.260	-259	-258	-259			
AQ	0.053	0.073		.060	-060	-060	-060			
AR										
AS										
Accept/Reject										

Measured by:	B.G. / gml
Date:	05/04/04

Audited by:	EP
Date:	05/04/04

Rev	Date	Change	Revised by	Approved
A	02.12.13	New Issue	KJ/RF	RF

RELEASED
03.07.01 RF

DART AEROSPACE LTD	Work Order:	22537
Description: Ø2.750 Support	Part Number:	D2893-1
Inspection Dwg: D2893 Rev. A1		Page 1 of 1

Inspect dimensions highlighted on inspection sheet drawing D2893 Rev A1/DSK078 Rev A and record below:

				Recorded Actual Dimensions					
Dim	Min	Max	Go/No Go Gauge	1	2	3	4	By	Date
Lathe Section									
A	2.707	2.712		2.709	2.709				
B	4.946	4.966		4.958	4.954				
C	3.064	3.084		3.074	3.075				
D	0.718	0.738		0.726	0.733				
E	0.090	0.110		0.106	0.092				
F	2.934	2.954		2.946	2.946				
G	2.166	2.186		2.179	2.175				
H	3.890	3.910		3.901	3.901				
I	0.914	0.934		0.929	0.930				
J	0.022	0.042		0.032	0.032				
K	0.109	0.129		0.115	0.118				
L									
HAAS Section									
AA	2.985	3.005		2.995	2.994				
AB	0.440	0.460		.440	.440				
AC	0.125	0.160		.145	.147				
AD	0.040	0.060		.040	.040				
AE	0.188	0.193	DT8706						
AF	0.125	0.160		.143	.145				
AG	0.140	0.160		.155	.148				
AH	1.360	1.400		1.386	1.380				
AI	0.040	0.060		.046	.042				
AJ	1.190	1.230		1.229	1.225				
AK	0.010	0.020							
AL	0.053	0.073		.060	.060				
AM	0.240	0.260		.240	.240				
AN	2.518	2.538		2.528	2.528				
AO	84.39	90.39	DT8699						
AP	0.257	0.262	DT8683	.259	.259				
AQ	0.053	0.073		.060	.060				
AR									
AS									
Accept/Reject									

Measured by:	<i>ml</i>
Date:	05/04/04

Audited by:	<i>Er</i>
Date:	05/04/04

Rev	Date	Change	Revised by	Approved
A	02.12.13	New Issue	KJ/RF	<i>RF</i>

RELEASED
03.07.01

Job Costing Report

Dart Aerospace Ltd.
Hawkesbury

Feb 23, 2005
10:16 am

Work Order No	:	0022537	Department Code:	
Project Name	:	D2893-1	Burden Flags	: NNNNNNN
Project For	:	WK513	WO Status	: Open
Work Order Type	:	Main	Invoice State	: Not Invoiced
Main WO Number	:		Invoice Date	:
House Part Number	:	D2893-1	Invoice Number	:
Description	:	Support	Invoice Amount	: 0.00
Manufactured	:	Yes		
Amount Req'd	:	20	Order Entry No	:
Amount Done	:	0	OE Value	: 0.00
Start Date	:	02-23-05	Est Margin	: 0.000%
Est Finish Date	:	03-15-05	Actual Margin	: 0.000%
Act Finish Date	:			
Drawings Reqd	:	No		
Ok for Approval	:			
Approval Rec'd	:			\$0 Posted to Finished Goods

	Estimated	Actual	Var. %	Posted	To Post
Material Cost	: 0.00	0.00	0.00	0.00	0.00
Engineering Hours	: 0.00	0.00	0.00		
Engineering Cost	: 0.00	0.00	0.00	0.00	0.00
Production Hours	: 0.00	0.00	0.00		
Production Cost	: 0.00	0.00	0.00	0.00	0.00
Packaging Hours	: 0.00	0.00	0.00		
Packaging Cost	: 0.00	0.00	0.00	0.00	0.00
OverHead Hours	: 0.00	0.00	0.00		
OverHead Cost	: 0.00	0.00	0.00	0.00	0.00
CNC Hours	: 0.00	0.00	0.00		
CNC	: 0.00	0.00	0.00	0.00	0.00
Misc. Hours	: 0.00	0.00	0.00		
Misc.	: 0.00	0.00	0.00	0.00	0.00
<hr/>					
Burden	: 0.00	0.00	0.00		
<hr/>					
Total Cost	: 0.00	0.00	0.00		
Margin	: 0.000	0.000			
Selling Cost	: 0.00	0.00			

	Estimated	Actual
Labour Hrs/Amount Done	: 0.00	0.00
Profits/ (Loss)	: 0.00	0.00

CERTIFICATE OF TESTS
CERT SERIAL# 000483396



TALLEY METALS
A Carpenter Company

Talley Metals Technology, Inc.
P.O. Box 2498
Hartsville, SC 29551 Tel. 843.335.7540 Fax. 843.335.6465

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12/28/04

CUSTOMER/BESTELLER/CLIENT

SELLER/VERKAUFER/VENDEUR PAGE 1 OF 2

COPPER & BRASS SALES
22355 W ELEVEN MILE
SOUTHFIELD , MI 48034

HVL

CUSTOMER ORDER NO./BESTELL-NR./N° DE COMMANDE	CARPENTER NO./WERKS-NR./N° DE REFERENCE INTERNE	DATE/DATUM/DATE	WEIGHT/GEWICHT/POIDS
C91353-01	W66462	12/28/04	5810

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE : G9745

PRODUCT DESCRIPTION: TYPE 17-4 MAXX SOLUTION ANNEALED ROUGH TURNED
----- PART NUMBER: 408860-5

SPECIFICATION: TALLEY 174-T1A CAP OF H900 (01/11/99)
----- AMS 2303 REV E (10/01)
AMS 2315 REV E (04/01)
AMS 5643 REV Q (01/03) (EXCEPT CD ROUND CHEM & MECH PROPS
ONLY)
ASTM-A484-03A
ASTM-A564-04
ASME-SA564 2001 EDITION

SIZE 4.000000 IN.(101.60 MM) RD BAR

PRIMARY HEAT CHEMISTRY(WT%):

C 0.032	MN 0.78	SI 0.35	P 0.026	S 0.026	CR 15.41
NI 4.35	MO 0.18	CU 3.72	N 0.033	CB 0.24	TA 0.01
CB+TA 0.25					

DISCS MACROETCHED AND APPROVED

HARDNESS AS SHIPPED, HB - 340 (MIDRADIUS)

MAGNETIC PARTICLE: FREQUENCY = 0 / SEVERITY = 0

MICROSTRUCTURE - FERRITE 1.35%

CONTINUED ON NEXT PAGE

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CERTIFICATE OF TESTS
CERT SERIAL# 000483396



Talley Metals Technology, Inc.
P.O. Box 2498
Hartsville, SC 29551 Tel. 843.335.7540 Fax. 843.335.6465

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CERTIFICAT DE CONTROLE

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12/28/04
CUSTOMER/BESTELLER/CLIENT

SELLER/VERKAUFER/VENDEUR PAGE 2 OF 2

COPPER & BRASS SALES
22355 W ELEVEN MILE
SOUTHFIELD , MI 48034

HVL

CUSTOMER ORDER NO./BESTELL-NR./N° DE COMMANDE	CARPENTER NO./WERKS-NR./N° DE REFERENCE INTERNE	DATE/DATUM/DATE	WEIGHT/GEWICHT/POIDS
C91353-01	W66462	12/28/04	5810

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE : G9745
CAPABILITY

900 F(482 C), 01 HR AIR COOL

YIELD STRENGTH, (0.20 %) KSI(MPA)	195.0(1344)
TENSILE STRENGTH, KSI(MPA)	206.0(1420)
ELONGATION IN 2.00", %	14.0
REDUCTION OF AREA, %	46.0
HARDNESS , HB	408.0

(CONVERTED FROM TENSILE STRENGTH)

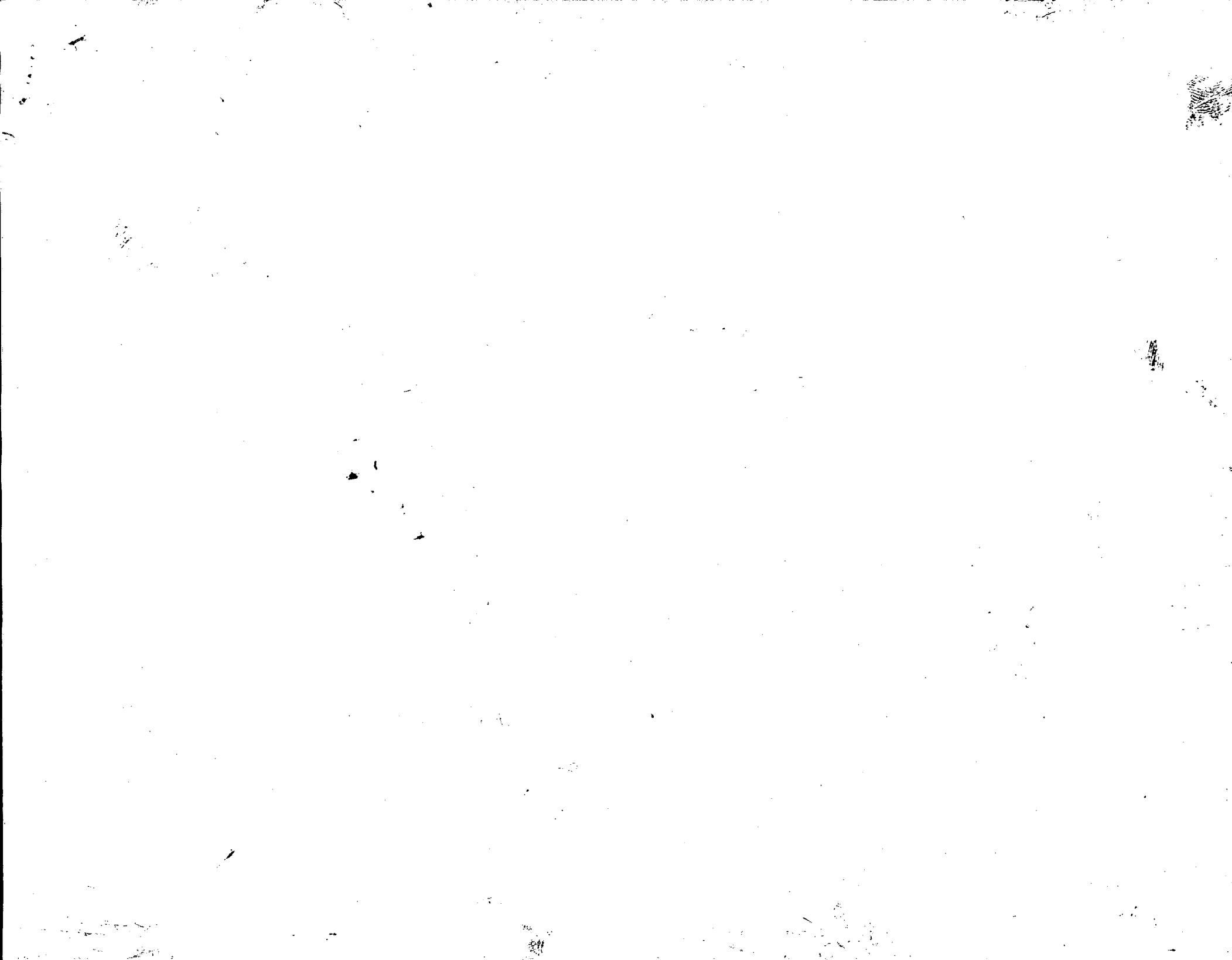
MATERIAL WAS MELTED AND MANUFACTURED IN THE USA.
NO WELD REPAIR

WE HEREBY CERTIFY THAT THE ABOVE TEST DATA ARE IN ACCORDANCE WITH THE PURCHASE ORDER AND SPECIFICATION REQUIREMENTS.

STEPHANIE E. MCCULLUM
QUALITY ASSURANCE ENGINEER
CARPENTER TECHNOLOGY CORPORATION

Stephanie E. McCullum

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Chris Provencal

From: "David Shepherd" <davids@dartaero.com>
To: "Chris Provencal" <chrisp@dartaero.com>
Sent: April 5, 2005 2:30 PM
Subject: Re: Xtube support problem

I recommend that we buff out this groove. The part can be up to 0.020" under tolerance and I will be OK with it. We should figure out exactly what the problem is before we make more. Somehow, by tool or by chips, we are cutting too deep.

David

----- Original Message -----

From: Chris Provencal
To: David Shepherd
Sent: Tuesday, April 05, 2005 11:40 AM
Subject: Xtube support problem

For some reason the program is making a groove in the D2893-1 support, they don't know why, supposedly the program looks good. They have a few parts like this (see picture). They have a circumferencial groove, looks about 0.010"x0.010". The said the could buff it out but its likely to show.

Sincerely,
Chris Provencal
DART Aerospace Ltd.
Email...chrisp@dartaero.com
Phone...613-632-3336
Fax.....613-632-4443